

Form PTO-1390  
(Rev. 12-29-99)

US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NO  
H 3933 PCT/US

**TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371**

U.S. APPLICATION NO. (if known see 37 CFR 1.5)

**09/937912**

INTERNATIONAL APPLICATION NO.  
**PCT/EP00/02538**

INTERNATIONAL FILING DATE  
**March 22, 2000**

PRIORITY DATE CLAIMED  
**April 1, 1999**

**TITLE OF INVENTION**

**PHOSPHATE-TYPE TENSIDES COMBINED WITH HAIR CONDITIONING AGENTS IN HAIR  
COLOURING COMPOSITIONS**

**APPLICANT(S) FOR DO/EO/US**

**Mustafa Akram, Wolfgang Wolff, Sandra Rohweder**

Applicant herewith submits to the United States Designated/Elected Office (EO/DO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
  2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
  3. ☐ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39 (1).
  4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
  5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2)).
    - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
    - b. ☒ has been transmitted by the International Bureau.
    - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
  6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
  7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
    - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
    - b. ☐ have been transmitted by the International Bureau.
    - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
    - d. ☒ have not been made and will not be made.
  8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
  9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). **UNEXECUTED**
  10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).
- Items 11. to 16. below concern other document(s) or information included:
11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
  12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
  13. ☒ A **FIRST** preliminary amendment  
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
  14. ☐ A substitute specification.
  15. ☐ A change of power of attorney and/or address letter.
  16. ☒ Other items or information:

**International Search Report (with Information Disclosure Citation and References)**

"Express Mail" mailing label number EL615775511US

U.S. Application No. (If known, see 37 CFR 1.5) <b>09/937912</b>		INTERNATIONAL APPLICATION NO. PCT/EP00/02538		ATTORNEY'S DOCKET NUMBER H 3933 PCT/US	
17. ■ The following fees are submitted: <b>BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):</b> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO..... <b>\$1,040.00</b>  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO..... <b>\$890.00</b>  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... <b>\$740.00</b>  International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... <b>\$710.00</b>  International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)..... <b>\$100.00</b>  <b>ENTER APPROPRIATE BASIC FEE AMOUNT</b> =				<b>CALCULATIONS</b> <b>PTO USE ONLY</b>	
				\$ 890	
				\$ 0	
				\$ 0	
				\$ 0	
Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date 37 (CFR 1.492(e)).				\$ 0	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	1 - 20 =	0	0 X \$18.00	\$ 0	
Independent Claims	1 - 3 =	0	0 X \$80.00	\$ 0	
Multiple dependent claims (s)(if applicable) 0			+ \$270.00	\$ 0	
<b>TOTAL OF ABOVE CALCULATIONS</b> =				\$ 890	
Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).				\$ 0	
<b>SUBTOTAL</b> =				\$ 890	
Processing fee of <b>\$130.00</b> for furnishing the English translation later the <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$ 0	
<b>TOTAL NATIONAL FEE</b> =				\$ 890	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$ 0	
<b>TOTAL FEES ENCLOSED</b> =				\$ 890	
				Amount to be refunded:	\$-----
				charged:	\$ 890.00
a. <input type="checkbox"/> A check in the amount of \$_____ to cover the above fees is enclosed.  b. ■ Please charge my Deposit Account No. <u>01-1250</u> in the amount of \$ <u>890.00</u> to cover the above fees. A triplicate copy of this sheet is enclosed. Order No. <u>01-0685</u> . c. ■ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>01-1250</u> . A duplicate copy of this sheet is enclosed. <b>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.</b>					
SEND ALL CORRESPONDENCE TO:		Henkel Corporation, Law Dept. 2500 Renaissance Blvd., Suite 200 Gulph Mills, PA 19406			
		SIGNATURE: <u>Kimberly R. Hild</u>  Kimberly R. Hild NAME ATTORNEY FOR APPLICANT <u>39,224</u> REGISTRATION NUMBER			

U.S. Application No. (If known, see 37 CFR 1.5)

09/937912

INTERNATIONAL APPLICATION NO.  
PCT/EP00/02538ATTORNEY'S DOCKET NUMBER  
H 3933 PCT/US

## 17. The following fees are submitted:

**BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):**

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO..... **\$1,040.00**

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO..... **\$890.00**

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... **\$740.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... **\$710.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)..... **\$100.00**

**ENTER APPROPRIATE BASIC FEE AMOUNT**

=

\$ 890

Surcharge of **\$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).

\$ 0

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total Claims	1 - 20 =	0	0 X \$18.00
Independent Claims	1 - 3 =	0	0 X \$80.00
Multiple dependent claims (s)(if applicable)	0		+ \$270.00

\$ 0

**TOTAL OF ABOVE CALCULATIONS**

=

\$ 890

Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).

\$ 0

**SUBTOTAL**

=

\$ 890

Processing fee of **\$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(f)).

\$ 0

+

**TOTAL NATIONAL FEE**

=

\$ 890

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property

\$ 0

+

**TOTAL FEES ENCLOSED**

=

\$ 890

Amount to be:  
refunded:

\$-----

charged:

\$ 890.00

a. ☐ A check in the amount of \$\_\_\_\_\_ to cover the above fees is enclosed.

b. ☒ Please charge my Deposit Account No. 01-1250 in the amount of \$ 890.00 to cover the above fees. A triplicate copy of this sheet is enclosed. Order No. 01-0685.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 01-1250. A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO: Henkel Corporation, Law Dept.  
2500 Renaissance Blvd., Suite 200  
Gulph Mills, PA 19406

SIGNATURE:

*Kimberly R. Hild*

Kimberly R. Hild  
NAME ATTORNEY FOR APPLICANT  
39,224  
REGISTRATION NUMBER

PATENT

Docket No. H 3933 PCT/US

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re Application of:**

Akram, et al.

**International Application No.** PCT/EP00/02538

**International Filing Date:** March 22, 2000

**Serial No.** 09/937,912

**Examiner:** To be assigned

**Filed:** To be assigned

**Art Unit:** To be assigned

**Title:** PHOSPHATE-TYPE TENSIDES COMBINED WITH HAIR  
CONDITIONING AGENTS IN HAIR COLOURING  
COMPOSITIONS

"Express Mail Post Office to Addressee" service mailing label number EL615775366US

**SUPPLEMENTAL PRELIMINARY AMENDMENT**

Box PCT  
Assistant Commissioner for Patents  
Washington, DC 20231

Attn: DO/EO/US

Sir:

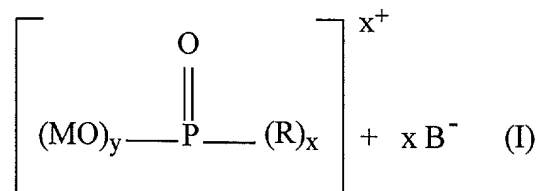
Prior to examining this application, please amend the application as follows:

**In the Claims**

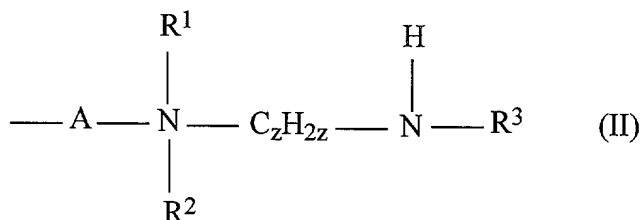
Please cancel Claim 1, without prejudice.

Please add the following new claims:

14. (NEW) A composition for coloring keratin fibers comprising  
(a) at least one tenside of formula (I)



wherein y is an integer from 0 to 2, x is an integer from 1 to 3, and the sum of x and y is 3, wherein M is hydrogen, an alkali metal, alkaline earth metal, or an ammonium cation, or an alkyl radical having 1 to 4 carbon atoms that is optionally substituted by one or more hydroxyl groups, wherein B is a physiologically compatible anion, and wherein R is a radical of formula (II),



in which z is an integer from 1 to 4, R<sup>1</sup> and R<sup>2</sup>, independently of one another, are a C<sub>1</sub> to C<sub>4</sub> alkyl radical, that is optionally substituted by one or more hydroxyl groups, or an acyl group, A is -O-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-, -O-CH<sub>2</sub>-CH<sub>2</sub>- or -O-CH<sub>2</sub>-CHOH-CH<sub>2</sub>-, and R<sup>3</sup> is a branched or unbranched, saturated C<sub>8</sub> to C<sub>18</sub> acyl radical, or a branched or unbranched, monounsaturated or polyunsaturated C<sub>8</sub> to C<sub>18</sub> acyl radical;

- (b) at least one conditioning component; and  
(c) at least one dye or dye precursor, or combinations thereof.

15. (NEW) The composition of claim 14, wherein the composition further comprises at least one anionic tenside.
16. (NEW) The composition of claim 15, wherein the anionic tenside comprises a soap.
17. (NEW) The composition of claim 14 wherein the conditioning component comprises a low molecular weight quaternary ammonium compound.
18. (NEW) The composition of claim 14 wherein the conditioning component comprises a cationic polymer.
19. (NEW) The composition of claim 18 wherein the cationic polymer comprises a quaternized cellulose derivative.
20. (NEW) The composition of claim 18 wherein the cationic polymer comprises Polyquaternium-2.
21. (NEW) The composition of claim 14 wherein the conditioning component comprises a quaternized protein hydrolyzate.
22. (NEW) The composition of claim 14 wherein the conditioning component comprises a silicone oil.
23. (NEW) The composition of claim 14 wherein the dye or dye precursor comprises at least one oxidative developer dye precursor.

24. (NEW) The composition of claim 14 wherein the dye or dye precursor comprises at least one indole derivative, or indoline derivative, or combinations thereof.

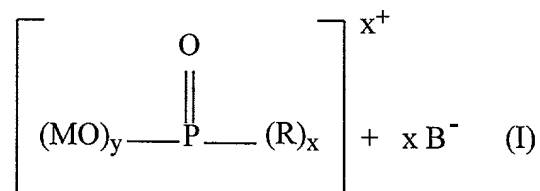
25. (NEW) The composition of claim 14 wherein the dye or dye precursor comprises at least one substantive dye, or natural dye, or combinations thereof.

26. (NEW) The composition of claim 14 wherein the tenside of formula I comprises at least one compound selected from Linoleamidopropyl PG-Dimonium Chloride Phosphate, Cocamidopropyl PG-Dimonium Chloride Phosphate or Stearamidopropyl PG-Dimonium Chloride Phosphate, or combinations thereof.

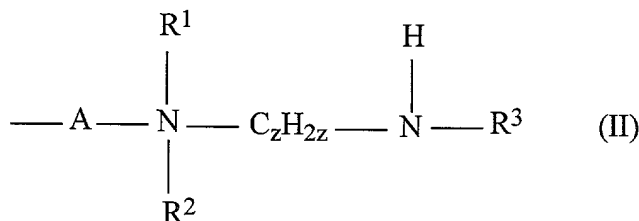
27. (NEW) The composition of claim 26 wherein the conditioning component comprises at least one low molecular weight quaternary ammonium compound or cationic polymer, or combinations thereof.

28. (NEW) A method for coloring keratin fibers comprising applying to keratin fibers a composition comprising

(a) at least one tenside of formula (I)



wherein y is an integer from 0 to 2, x is an integer from 1 to 3, and the sum of x and y is 3, wherein M is hydrogen, an alkali metal, alkaline earth metal, or an ammonium cation, or an alkyl radical having 1 to 4 carbon atoms that is optionally substituted by one or more hydroxyl groups, wherein B is a physiologically compatible anion, and wherein R is a radical of formula (II),



in which z is an integer from 1 to 4, R<sup>1</sup> and R<sup>2</sup>, independently of one another, are a C<sub>1</sub> to C<sub>4</sub> alkyl radical, that is optionally substituted by one or more hydroxyl groups, or an acyl group, A is -O-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-, -O-CH<sub>2</sub>-CH<sub>2</sub>- or -O-CH<sub>2</sub>-CHOH-CH<sub>2</sub>-, and R<sup>3</sup> is a branched or unbranched, saturated C<sub>8</sub> to C<sub>18</sub> acyl radical, or a branched or unbranched, monounsaturated or polyunsaturated C<sub>8</sub> to C<sub>18</sub> acyl radical;

(b) at least one conditioning component; and

(c) at least one dye or dye precursor, or combinations thereof.



29. (NEW) The method of claim 28 wherein the composition further comprises at least one anionic tenside.

30. (NEW) The method of claim 29 wherein the conditioning component comprises at least one low molecular weight quaternary ammonium compound, or cationic polymer, or combinations thereof.

31. (NEW) The method of claim 30 wherein the tenside of formula I comprises at least one compound selected from Linoleamidopropyl PG-Dimonium Chloride Phosphate, Cocamidopropyl PG-Dimonium Chloride Phosphate or Stearamidopropyl PG-Dimonium Chloride Phosphate, or combinations thereof.

32. (NEW) The method of claim 30 wherein the anionic tenside comprises a soap.

**REMARKS**

Applicants respectfully request the Examiner to enter the above amendments prior to examination of this application.

**Status of Claims**

Claims 14 to 32 will be pending after entry of the present amendment. Claim 1 is being canceled without prejudice.

**Amendment**

New Claims 14 to 32 replace original Claims 1 to 13, and are being presented to better conform with US patent practice. These new claims are supported by the specification for example as shown in the Table below (cites to the specification are for the English translation):

Claim	Support in Specification
14	page 2, line 15 to page 3, line 29, page 5, lines 1 to 3, page 10, lines 21 to 28
15, 16, 29, 32	page 20, lines 1 to 3 and lines 15 to 16
17, 30	page 5, lines 1 to 11
18, 19, 20, 30	page 5, line 28 to page 6, line 34
21	page 7, lines 24 to 30
22	page 8, lines 33 to 36
23	page 10, lines 29 to 33
24	page 14, line 18 to page 15, line 19
25	page 16, lines 27 to 31 and page 17, lines 11 to 16
26, 31	page 4, lines 25 to 29
27	page 5, lines 1 to 31
28	page 26, lines 16 to 18, page 2, line 15 to page 3, line 29, page 5, lines 1 to 3, page 10, lines 21 to 28

No new matter is added by the new claims or amendments to the specification.

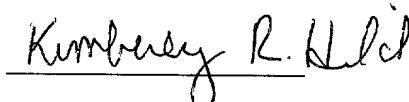
Serial No. 09/937,912  
PCT/EP00/02538

Docket No. H3933 PCT/US

CONCLUSION

Applicants respectfully request early and favorable notification of allowance of all pending claims. The Assistant Commissioner is authorized to charge any deficiency in the required fee or to credit any overpayment to Deposit Account 01-1250 in connection with this amendment.

Respectfully submitted,



Kimberly R. Hild  
(Reg. No. 39,224)  
Attorney for Applicants  
(610) 278-4964

Henkel Corporation  
Law Department  
2500 Renaissance Boulevard, Suite 200  
Gulph Mills, PA 19406

09/937912

JCO9 Rec'd PCT/PTO 01 OCT. 2001

PATENT  
Docket No. H 3933 PCT/US

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re Application of:**  
Akram, et al.

**International Application No.** PCT/EP00/02538  
**International Filing Date:** March 22, 2000

**Serial No.** To be assigned  
**Filed:** To be assigned  
**Examiner:** To be assigned  
**Art Unit:** To be assigned

**Title:** PHOSPHATE-TYPE TENSIDES COMBINED WITH HAIR  
CONDITIONING AGENTS IN HAIR COLOURING  
COMPOSITIONS

"Express Mail Post Office to Addressee" service mailing label number EL615775511US

**PRELIMINARY AMENDMENT**

Box PCT  
Assistant Commissioner for Patents  
Washington, DC 20231

Attn: DO/EO/US

Sir:

Prior to examining this application, please amend the application as follows:

**In the Specification (Using the English Translation):**

On page 1 of the English translation, on a separate line between the title and line 1, please insert the following header and paragraph on consecutive lines as shown below:

**-- CROSS REFERENCE TO RELATED APPLICATIONS**

This application is a national stage application under 35 U.S.C. § 371 of international application PCT/EP00/02538 filed on March 22, 2000, the international application not being published in English. This application also claims priority under 35 U.S.C. §119 to DE 199 14 927.5, filed on April 1, 1999. --

On page 1, on a separate line immediately after the above inserted paragraph and before line 1, please insert the following header:

-- FIELD OF THE INVENTION --.

On page 1, on a separate line between lines 6 and 7, please insert the following header:  
-- BACKGROUND OF THE INVENTION -- .

On page 2, on a separate line between lines 23 and 24, please insert the following header:  
-- DETAILED DESCRIPTION OF THE INVENTION --.

On page 26, please replace the paragraph beginning on line 15 and ending on line 17 with the following new paragraph:

-- The present invention further provides for the use of the compositions of the present invention for coloring keratin fibers. --

On page 42, line 1, please replace the heading "Patent Claims" with the following heading:

-- What is claimed is: --

On a separate page, after page 44, please insert the enclosed Abstract of the Disclosure.

**Docket No. H3933 PCT/US**  
**PCT/EP00/02538**

**In the Claims**

Please cancel Claims 2 to 13, without prejudice.

2014-07-23 15:00:00

**REMARKS**

Applicants respectfully request the Examiner to enter the above amendments prior to examination of this application.

**Status of Claims**

Claim 1 will be pending after entry of the present amendment. Claims 2 to 13 are being canceled without prejudice.

**Amendment**

The specification is being amended to insert section headers and an abstract of the disclosure in accordance with 37 CFR §1.77 to better conform with US patent practice. The specification is also being amended to insert a cross-reference to related applications in accordance 37 CFR §1.78 and to claim priority to those applications listed therein.

The paragraph on page 26, lines 16 to 18 has been clarified since claims 3 to 12 of the PCT application have been cancelled.

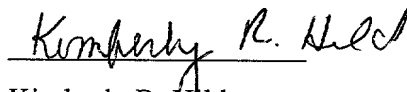
No new matter is added by the amendments to the specification. Applicants submit herewith "Version With Markings To Show Changes Made" to show the amendments made to the specification.

Docket No. H3933 PCT/US  
PCT/EP00/02538

**CONCLUSION**

The Assistant Commissioner is authorized to charge any deficiency in the required fee or to credit any overpayment to Deposit Account 01-1250 in connection with this amendment.

Respectfully submitted,



Kimberly R. Mild  
(Reg. No. 39,224)  
Attorney for Applicants  
(610) 278-4964

Henkel Corporation  
Law Department  
2500 Renaissance Boulevard, Suite 200  
Gulph Mills, PA 19406



## Abstract of the Disclosure

The present invention relates to a composition for coloring keratin fibers and a method of use thereof. The coloring composition contains at least one phosphate-based tenside of a particular formula, at least one conditioning component, and at least one dye and/or dye precursor.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

**In the Specification:**

On page 26, the paragraph beginning on line 15 and ending on line 17 as been amended as shown below:

-- The present invention further provides for the use of the compositions of the present invention [as claimed in one of claims 3 to 12] for coloring keratin fibers. --

On page 42, line 1, the heading "Patent Claims" has been amended as shown below:

[Patent Claims] What is claimed is:

JC09 Rec'd PCT/PTO 01 OCT 2001

PHOSPHATE-TYPE TENSIDES COMBINED WITH HAIR CONDITIONING  
AGENTS IN HAIR COLORING COMPOSITIONS

5 The present invention relates to a care active ingredient combination for the treatment of keratin fibers, in particular human hair, to hair coloring compositions which comprise this combination, and to the use of this active ingredient combination in hair coloring compositions.

10 The cleansing and care of the hair is an important part of human bodycare. Both the cleansing of the hair using shampoos and also the decorative arrangement of the hairstyle, for example by coloring or permanent waving, are interventions which influence the natural structure and the properties of the hair.

15 Thus, for example, customary hair coloring compositions are formulated on the basis of oxidation dyes. Combinations of oxidation dyes and substantive dyes are frequently used to achieve specific shades. Colorants based on oxidation dyes lead to brilliant and permanent color shades. However, they require the use of strong oxidizing agents such as, for example, 20 hydrogen peroxide solution. This can damage the hair to be colored. This damage must then be counteracted using suitable care products.

25 For this reason, it has been customary for some time to subject the hair to a special after-treatment. For this, the hair is treated with special active ingredients, for example quaternary ammonium salts or special polymers, usually in the form of a rinse. Depending on the formulation, this treatment improves combability, hold and fullness of the hair and reduces 30 the proportion of split-ends.

Furthermore, "combination preparations" have recently been developed in order to reduce the time and

effort of customary multistage procedures, in particular in the case of direct application by consumers.

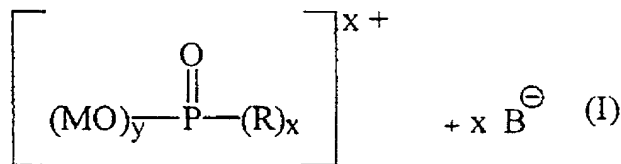
As well as the customary components, for example  
 5 for coloring the hair, these preparations additionally  
 comprise active ingredients which were previously  
 reserved for hair after-treatment agents. The consumer  
 thus saves an application step; at the same time, the  
 packaging cost is reduced since one product is used  
 10 less.

The active ingredients which are available both  
 for separate after-treatment agents and also for  
 combination preparations can still not satisfy all of  
 the wishes of the consumer.

15 There is therefore still a need for active  
 ingredients and active ingredient combinations with  
 good care properties and good biodegradability for  
 which undesired accumulations on the hair are excluded.

Surprisingly, it has now been found that a  
 20 combination of certain cationic tensides with further  
 conditioning substances do not have the abovementioned  
 disadvantages and at the same time improve the feel,  
 wet combability and the shine of the treated hair.

The invention thus firstly provides agents for the  
 25 care treatment of keratin fibers, in particular human  
 hair, which comprise at least one tenside of the  
 formula (I)



and at least one conditioning component.

30 In the formula (I), y is an integer from 0 to 2, x  
 is an integer from 1 to 3 with the proviso that the sum  
 of x and y is 3.

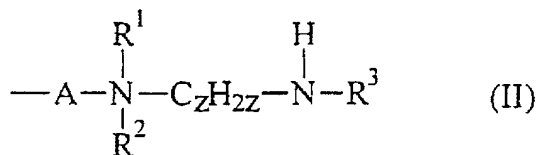
In the tensides to be used according to the

0937910440

invention, M is additionally hydrogen, an equivalent of an alkali metal or alkaline earth metal cation, an ammonium cation or an alkyl radical having 1 to 4 carbon atoms, which is optionally substituted by one or more hydroxyl group(s). Particular preference is given to compounds in which M is a sodium cation.

Furthermore, B in the formula (I) of the tensides to be used according to the invention is an equivalent of a physiologically compatible anion. Examples of suitable anions are chloride, bromide, iodide, sulfate, perchlorate, tetrafluoroborate, tetraphenylborate and tetrachloridezincate. Preference is given to the chloride ion.

R in the tensides of the formula (I) according to the invention is a radical of the formula (II),



in which z is an integer from 1 to 4, in particular 3, and

R<sup>1</sup> and R<sup>2</sup>, independently of one another, are a C<sub>1</sub>-C<sub>4</sub>-alkyl radical, which is optionally substituted by one or more hydroxyl group(s) or an acyl group.

According to the invention, A is one of the units -O-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-, -O-CH<sub>2</sub>-CH<sub>2</sub>- or -O-CH<sub>2</sub>-CHOH-CH<sub>2</sub>-, the unit -O-CH<sub>2</sub>-CHOH-CH<sub>2</sub>- being particularly preferred.

The radical R<sup>3</sup> is

(a) a branched or unbranched, saturated C<sub>8</sub>-C<sub>18</sub>-acyl radical or

(b) a branched or unbranched, mono- or polyunsaturated C<sub>8</sub>-C<sub>18</sub>-acyl radical.

Particularly preferred saturated radicals R<sup>3</sup> are the radicals of stearic acid, and the radicals of the mixture of the fatty acids which are obtained from coconut oil.

A particularly preferred unsaturated radical R<sub>3</sub> is the radical of linoleic acid. Surprisingly, it has been

found that compounds of the formula (I) in which  $R^3$  is the radical of linoleic acid are characterized by higher compatibility with the emulsifier system. This means that the substances can be incorporated more easily into the formulations. Furthermore, formulations containing compounds of the formula (I) in which  $R^3$  is the radical of linoleic acid has a significantly higher care effect compared with compounds containing saturated fatty acid radicals.

Examples of the  $C_1$ - $C_4$ -alkyl groups mentioned as substituents in the compounds according to the invention are the groups methyl, ethyl, propyl, isopropyl and butyl. Ethyl and methyl groups are preferred alkyl groups. Very particular preference is given to methyl groups.

Compounds of the formula (I) are already known. Thus, EP-A1-13 713 describes the surface-active properties of these compounds in general. In addition, the use of a compound of the formula (I) in hair coloring compositions is already known from DE-A1-44 08 506. However, these specifications give no indications of the synergistic increase in the care effect of the active ingredient combinations according to the invention.

Very particularly preferred compounds of the formula (I) are the substances known under the INCI names Linoleamidopropyl PG-Dimonium Chloride Phosphate, Cocamidopropyl PG-Dimonium Chloride Phosphate and Stearamidopropyl PG-Dimonium Chloride Phosphate. These are sold, for example, by Mona under the trade names Phospholipid EFA<sup>®</sup>, Phospholipid PTC<sup>®</sup> and Phospholipid SV<sup>®</sup>.

According to the invention, the compounds of the formula (I) are used in the claimed agents in amounts of from 0.1 to 5% by weight, in particular in amounts of from 0.2 to 2% by weight, in each case based on the total agent.

According to the invention, preferred conditioning active ingredients are the low molecular weight quaternary compounds. Particular preference is given to ammonium halides, such as alkyltrimethylammonium chlorides, dialkyldimethylammonium chlorides and trialkylmethylammonium chlorides, e.g. cetyltrimethylammonium chloride, stearyltrimethylammonium chloride, distearyldimethylammonium chloride, lauryldimethylammonium chloride, lauryldimethylbenzylammonium chloride and tricetylmethylammonium chloride.

Very particularly preferred compounds are the halides of the cetyltrimethylammonium cation, in particular the bromide.

The preferred quaternary ammonium compounds also include the quaternary ester compounds, so-called "ester quats", such as the methylhydroxyalkyl-dialkoyloxyalkylammonium methosulfates sold under the trade name Stepantex®, and the product sold under the trade name Dehyquart®. Very particular preference is given to the mixture of fatty alcohols with methyltriethanolammonium methylsulfate dialkyl esters sold under the trade name Dehyquart® F75.

A further preferred group of quaternary ammonium compounds are the quaternized derivatives of imidazoline, such as, for example, the product sold under the trade name Rewoquat® W75 PG (INCI name: Quaternium-27).

As conditioning active ingredients, preference may also be given to cationic polymers. These are polymers which usually contain a quaternary nitrogen atom, for example in the form of an ammonium group.

Preferred cationic polymers are, for example,

- quaternized cellulose derivatives, as are commercially available under the names Celquat® and Polymer JR®. The compounds Celquat® H 100, Celquat® L 200 and Polymer JR® 400 (INCI name: Polyquaternium-10) are preferred quaternized

cellulose derivatives.

- Polymeric dimethyldiallylammonium salts and copolymers thereof with esters and amides of acrylic acid and methacrylic acid, and the free acids. The products available commercially under the names Merquat® 100 (poly(dimethyldiallylammonium chloride)), Merquat® 280 (dimethyldiallylammonium chloride-acrylic acid copolymer), Merquat® 550 (dimethyldiallylammonium chloride-acrylamide copolymer), and Merquat® Plus 3300 (dimethyldiallylammonium chloride-acrylamide-acrylic acid terpolymer) are examples of such cationic polymers.
  - Copolymers of vinylpyrrolidone with quaternized derivatives of dialkylaminoacrylate and -methacrylate, such as, for example, vinylpyrrolidone-dimethylaminomethacrylate copolymers quaternized with diethyl sulfate. Such compounds are available commercially under the names Gafquat® 734 and Gafquat® 755. A further example of such a copolymer of vinylpyrrolidone and methacrylamidopropyltrimethylammonium chloride sold under the trade name Gafquat® HS 100.
  - Vinylpyrrolidone-methoimidazolinium chloride copolymers, as supplied under the name Luviquat®.
  - Quaternized polyvinyl alcohol
  - Polyquaternium-37, as sold under the trade name Salcare® SC96, and the polymers known under the names
  - Polyquaternium 2,
  - Polyquaternium 17,
  - Polyquaternium 18 and
  - Polyquaternium 27, with quaternary nitrogen atoms in the polymer main chain.
- Preference is given to cationic polymers from the first four groups mentioned, and, in particular, the polymers sold under the trade name Mirapol® A15 (INCI



name: Polyquaternium-2) and Gafquat® 755N (INCI name: Polyquaternium-11). Polyquaternium-2, in combination with the tensides of the formula (I), is a very particularly preferred conditioning component.

5        Particularly in the case of the combination of the compounds of the formula (I) with cationic polymers as conditioning components, surprisingly strong synergistic effects of the component have been observed with regard to the overall care effect.

10        A further group of conditioning components are the protein derivatives. The protein derivatives can be based on animal or vegetable proteins. Suitable starting substances are, for example, keratin, collagen, elastin, wheat proteins, milk proteins, egg  
15        white proteins, silk proteins, almond proteins, soya proteins and proteins from animal hides.

      Corresponding protein hydrolyzates are obtained in each case as a product mixture from the acidically, basically and/or enzymatically catalyzed degradation of  
20        these proteins. One example of a protein hydrolyzate preferred according to the invention is the collagen derivative sold under the trade name Crotein® C (INCI name: hydrolyzed collagen).

      Cationic derivatives are obtained by subsequent  
25        reaction with compounds which usually carry quaternary ammonium groups or by reaction with corresponding amines and subsequent quaternization. A series of such quaternary protein hydrolyzates are commercial products available, for example, under the trade names  
30        Lamequat® L (cationic collagen hydrolyzate; INCI name: Lauryldimonium Hydroxypropylamino Hydrolyzed Animal Protein; Henkel), Croquat® WKP (animal keratin hydrolyzate; INCI name: Aqua, Cocodimonium Hydroxypropyl Hydrolyzed Keratin; Croda),  
35        Hydrotritium® QL (cationic wheat protein hydrolyzate; INCI name: Lauryldimonium Hydroxypropyl Hydrolyzed Wheat Protein; Croda) and Crotein® Q (cationic collagen

hydrolyzate; INCI name: Hydroxypropyltrimonium Hydrolyzed Collagen; Croda).

In a first preferred embodiment, protein derivatives of an animal origin are preferred. Particular preference is given to the protein hydrolyzates of animal keratin. Since the composition with regard to the amino acid sequences present is very similar to that of human hair, a high affinity of such products to human hair results. Examples thereof are the products sold under the trade names Nutrilan® Keratin W and Promois® WK.

However, according to a further embodiment of the present invention, it may also be preferred to use protein derivatives of a vegetable origin. A preferred vegetable protein hydrolyzate is the quaternary wheat protein hydrolyzate sold under the trade name Gluadin® WQ.

In addition, quaternized galactomannan polysaccharides are preferred conditioning agents. Galactomannan polysaccharides preferred according to the invention are the quaternary guar gum derivatives, in particular quaternary hydroxy-C<sub>2</sub>-C<sub>4</sub>-alkyl guar gums, i.e. the quaternary propylene glycol ethers of guar gum, in particular the hydroxypropyl guar hydroxypropyltrimonium chloride. Some suitable derivatives are, for example, quaternary hydroxyethyl guar and quaternary hydroxybutyl guar. Suitable commercial products are, for example, sold under the trade names Jaguar® C-17 and Jaguar® C-162. A further group of suitable galactomannans are the quaternary polysaccharides obtained from the fruits of the carob tree.

In a further embodiment of the present compound, the conditioning components are chosen from the silicone oils. Silicone oils which may be used are, for example, the following compounds:

- oligomeric polydimethylcyclsiloxanes (INCI name:

- Cyclomethicone), in particular the tetramer and pentamer compound,
- hexamethyldisiloxane,
  - polyphenylmethylsiloxane (INCI name: Phenyl Trimethicone),
  - dimethylsiloxane/dimethylpolysiloxanol mixtures (INCI name: Cyclomethicone (and) Dimethiconol),
  - silicone-glycol copolymers (INCI name: Dimethicone Copolyol),
  - aminofunctional polydimethylsiloxanes and
  - hydroxylamino-modified silicones.

Such compounds are available commercially. Known commercial products are, for example, DC®344 Fluid, DC®345 Fluid, DC®200 Fluid, DC®556, DC®190, DC®193 SU and DC®Q2-1401 from Dow Corning, and the products Abil®K4, Abil®K520 and Abil®B8839 from Th. Goldschmidt AG.

Particular preference is given to the dimethylsiloxane/dimethylpolysiloxanol mixtures and the amino-group-containing silicone oils, such as, for example, the commercially available products Q2-7224 (manufacturer: Dow Corning; a stabilized trimethylsilylamodimethicone), Dow Corning 939 Emulsion (comprising a hydroxylamino-modified silicone which is also referred to as amodimethicone), SM-2059 (manufacturer: General Electric), SLM-55067 (manufacturer: Wacker) and Abil®-Quat 3270 and 3272 (manufacturer: Th. Goldschmidt; diquaternary polydimethylsiloxanes, quaternium-80). As conditioning active ingredients, it is also possible to use paraffin oils, synthetically prepared oligomeric alkenes, and vegetable oils, such as jojoba oil, sunflower oil, orange oil, almond oil, wheatgerm oil and peach kernel oil.

The conditioning components are preferably present in the compositions according to the invention in amounts of from 0.05 to 5% by weight, in particular from 0.1 to 2% by weight, in each case based on the

total composition. In the case of silicone oils, amounts of from 0.05 to 10% by weight, in particular from 0.2 to 5% by weight, very particularly amounts of from 0.5 to 2% by weight, in each case based on the total composition, in the compositions according to the invention may be preferred.

The nature of the hair-treatment composition used according to the invention is not subject to any limitations in principle. The compositions according to the invention can either remain on the hair, or be washed out again after a contact time of from a few seconds up to 45 minutes. Examples of compositions used according to the invention are shampoos, rinses, cures, conditioning agents, tinting agents, colorants, permanent waving compositions, neutralizing agents, hairsprays and blow waving compositions. The use of the active ingredient combinations according to the invention in rinse-off products may be a preferred embodiment.

The present invention further provides hair-treatment compositions which comprise the above-described active ingredient combination and at least one dye precursor and/or at least one dye. The colorations achieved with the compositions according to the invention are characterized by their improved fastness properties coupled with significantly improved care condition of the fibers.

In a first embodiment of this subject-matter of the present invention, the dye precursor may be an oxidation dye precursor of the developer type. It is also possible to use two or more developers together in the compositions according to the invention.

Developer substances are usually aromatic or heterocyclic ring systems which are characterized by two reactive groups, generally hydroxyl or amino groups, which are in the ortho or para position relative to one another. Such compounds are, for

example, primary aromatic amines with a further free or substituted hydroxyl or amino group in the para or ortho position, and also diaminopyridine derivatives, heterocyclic hydrazone derivatives or 4-aminopyrazolone derivatives.

Developer components preferred according to the invention are p-phenylenediamine, p-tolylenediamine, p-aminophenol, o-aminophenol, 1-(2'-hydroxyethyl)-2,5-diaminobenzene, N,N-bis(2-hydroxyethyl)-p-phenylenediamine, 2-(2,5-diaminophenoxy)ethanol, 1-phenyl-3-carboxyamido-4-amino-5-pyrazolone, 4-amino-3-methylphenol, 2,4,5,6-tetraaminopyrimidine, 2-hydroxy-4,5,6-triaminopyrimidine, 4-hydroxy-2,5,6-triaminopyrimidine, 2,4-dihydroxy-5,6-diaminopyrimidine, 2-dimethylamino-4,5,6-triaminopyrimidine, 2-hydroxymethylamino-4-aminophenol, 4,4'-diaminodiphenylamine, 4-amino-3-fluorophenol, 2-aminomethyl-4-aminophenol, 2-hydroxymethyl-4-aminophenol, bis(2-hydroxy-5-aminophenyl)-methane, 1,4-bis(4-aminophenyl)diazacycloheptane, 1,3-bis(N(2-hydroxyethyl)-N-(4-aminophenylamino))-2-propanol, 4-amino-2-(2-hydroxyethoxy)phenol, and 4,5-diaminopyrazole derivatives according to EP 0 740 931 and WO 94/08970, such as, for example, 4,5-diamino-1-(2'-hydroxyethyl)pyrazole.

Particularly preferred developer components are p-phenylenediamine, p-tolylenediamine, p-aminophenol, 1-(2'-hydroxyethyl)-2,5-diaminobenzene, 4-amino-3-methylphenol, 2-aminomethyl-4-aminophenol, 2,4,5,6-tetraaminopyrimidine, 2-hydroxy-4,5,6-triaminopyrimidine and 4-hydroxy-2,5,6-triaminopyrimidine.

Furthermore, to nuance the achievable color shades, the compositions according to the invention may also comprise one or more coupler components. Coupler substances are frequently aromatic or heterocyclic ring systems which have two reactive groups in the meta position. The coupler components usually used are m-phenylenediamine derivatives, naphthols, resorcinol and

resorcinol derivatives, pyrazolones and m-aminophenol derivatives.

Coupler components preferred according to the invention are

- 5 - m-aminophenol and derivatives thereof, such as, for example, 5-amino-2-methylphenol, 5-(3-hydroxypropylamino)-2-methylphenol, 3-amino-2-chloro-6-methylphenol, 2-hydroxy-4-aminophenoxyethanol, 3-amino-6-methoxy-2-methylaminophenol, 10 2,6-dimethyl-3-aminophenol, 3-trifluoroacetyl-amino-2-chloro-6-methylphenol, 5-amino-4-chloro-2-methylphenol, 5-amino-4-methoxy-2-methylphenol, 5-(2'-hydroxyethyl)amino-2-methylphenol, 3-(diethylamino)phenol, N-cyclopentyl-3-aminophenol, 15 1,3-dihydroxy-5-(methylamino)benzene, 3-(ethylamino)-4-methylphenol and 2,4-dichloro-3-aminophenol,
- o-aminophenol and derivatives thereof,
- m-diaminobenzene and derivatives thereof, such as, 20 for example, 2,4-diaminophenoxyethanol, 1,3-bis(2,4-diaminophenoxy)propane, 1-methoxy-2-amino-4-(2'-hydroxyethylamino)benzene, 1,3-bis(2,4-diaminophenyl)propane, 2,6-bis(2-hydroxyethylamino)-1-methylbenzene and 1-amino-3-bis(2'-hydroxyethyl)aminobenzene, 25
- o-diaminobenzene and derivatives thereof, such as, for example, 3,4-diaminobenzoic acid and 2,3-diamino-1-methylbenzene,
- di- or trihydroxybenzene derivatives, such as, for 30 example, resorcinol, resorcinol monomethyl ether, 2-methylresorcinol, 5-methylresorcinol, 2,5-dimethylresorcinol, 2-chlororesorcinol, 4-chlororesorcinol, pyrogallol and 1,2,4-trihydroxybenzene,
- 35 - pyridine derivatives, such as, for example, 2,6-dihydroxypyridine, 2-amino-3-hydroxypyridine, 2-amino-5-chloro-3-hydroxypyridine, 3-amino-2-

- methyamino-6-methoxypyridine, 2,6-dihydroxy-3,4-dimethylpyridine, 2,6-dihydroxy-3,4-diaminopyridine, 2,6-dihydroxy-4-methylpyridine, 2,6-diaminopyridine, 2,3-diamino-6-methoxypyridine and 3,5-diamino-2,6-dimethoxypyridine,
- 5 - naphthalene derivatives, such as, for example, 1-naphthol, 2-methyl-1-naphthol, 2-hydroxymethyl-1-naphthol, 2-hydroxyethyl-1-naphthol, 1,5-dihydroxynaphthalene, 1,6-dihydroxynaphthalene, 10 1,7-dihydroxynaphthalene, 1,8-dihydroxynaphthalene, 2,7-dihydroxynaphthalene and 2,3-dihydroxynaphthalene,
- morpholine derivatives such as, for example, 6-hydroxybenzomorpholine and 6-aminobenzomorpholine,
- 15 - quinoxaline derivatives, such as, for example, 6-methyl-1,2,3,4-tetrahydroquinoxaline,
- pyrazole derivatives, such as, for example, 1-phenyl-3-methylpyrazol-5-one,
- indole derivatives, such as, for example, 4-hydroxyindole, 20 6-hydroxyindole and 7-hydroxyindole,
- methylenedioxybenzene derivatives, such as, for example, 3,4-methylenedioxyphenol, 1-hydroxy-3,4-methylenedioxybenzene, 1-amino-3,4-methylenedioxybenzene and 1-(2'-hydroxyethyl)amino-3,4-methylenedioxybenzene.
- 25

Particularly preferred coupler components are 1-naphthol, 1,5-, 2,7- and 1,7-dihydroxynaphthalene, 5-amino-2-methylphenol, resorcinol, 3-aminophenol, 4-chlororesorcinol, 2-chloro-6-methyl-3-aminophenol, 2-methylresorcinol, 5-methylresorcinol, 2,5-dimethylresorcinol, 2-amino-3-hydroxypyridine, and 2,6-dihydroxy-3,4-diaminopyridine.

30

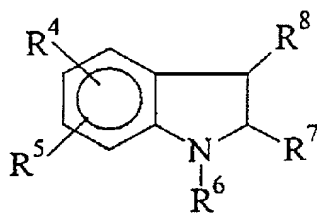
The developer and coupler components are usually used in free form. In the case of substances with amino groups, it may, however, be preferred to use them in salt form, in particular in the form of hydrochlorides

35

and sulfates.

The hair coloring compositions according to the invention comprise the developer components and also the coupler components preferably in amount of from 5 0.005 to 20% by weight, preferably 0.1 to 5% by weight, in each case based on the overall oxidation colorant. Developer components and coupler components are usually used in approximately equal molar amounts relative to one another. Although the equimolar feed has proven 10 advantageous, a certain excess of individual oxidation dye precursors is not disadvantageous, meaning that developer components and coupler components may preferably be present in a molar ratio of from 1:0.5 to 1:2 in the colorant. The total amount of oxidation dye 15 precursors is usually at most 20% by weight, based on the total composition.

According to a second preferred embodiment of the subject-matter of the present invention, the dye precursor may be a derivative of indoline of the 20 formula (IIIa),



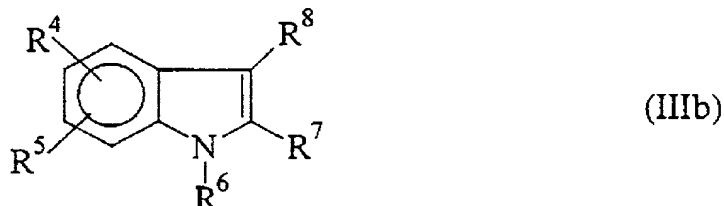
(IIIa)

in which, independently of one another,  $R^6$  is hydrogen, 25 a  $C_1$ - $C_4$ -alkyl group or a  $C_1$ - $C_4$ -hydroxyalkyl group,  $R^7$  is hydrogen or a  $-COOH$  group, where the  $-COOH$  group may also be in salt form with a physiologically compatible cation,  $R_8$  is hydrogen or a  $C_1$ - $C_4$ -alkyl group,  $R^4$  is hydrogen, a hydroxyl group, an amino group, a  $C_1$ - $C_4$ -alkoxy group or a group  $-OCO-R^9$ , in which  $R^9$  is a  $C_1$ - $C_4$ -alkyl group, and  $R^5$  is one of the groups mentioned 30 under  $R^4$ , or a physiologically compatible salt of these compounds with an organic or inorganic acid, with the



proviso that  $R^4$  and  $R^5$  are not hydrogen at the same time.

In a third preferred embodiment of the subject-matter of the present invention, the dye precursor may  
5 be a derivative of indole of the formula (IIIb),



in which, independently of one another,  $R^6$  is hydrogen, a  $C_1$ - $C_4$ -alkyl group or a  $C_1$ - $C_4$ -hydroxyalkyl group,  $R^7$  is  
10 hydrogen or a  $-COOH$  group, where the  $-COOH$  group may also be in salt form with a physiologically compatible cation,  $R^8$  is hydrogen or a  $C_1$ - $C_4$ -alkyl group,  $R^4$  is hydrogen, a hydroxyl group, an amino group, a  $C_1$ - $C_4$ -alkoxy group or a group  $-OCO-R^9$ , in which  $R^9$  is a  $C_1$ - $C_4$ -  
15 alkyl group, and  $R^5$  is one of the groups given under  $R^4$ , or a physiologically compatible salt of these compounds with an organic or inorganic acid, with the proviso that  $R^4$  and  $R^5$  are not hydrogen at the same time.

Preferred substances of the formula (IIIa) are  
20 5,6-dihydroxyindoline, N-methyl-5,6-dihydroxyindoline, N-ethyl-5,6-dihydroxyindoline, N-propyl-5,6-dihydroxyindoline, N-butyl-5,6-dihydroxyindoline, 5,6-dihydroxyindoline-2-carboxylic acid, 6-hydroxyindoline, 6-aminoindoline and 4-aminoindoline. Preferred  
25 substances of the formula (IIIb) are 5,6-dihydroxyindole, N-methyl-5,6-dihydroxyindole, N-ethyl-5,6-dihydroxyindole, N-propyl-5,6-dihydroxyindole, N-butyl-5,6-dihydroxyindole, 5,6-dihydroxyindole-2-carboxylic acid, 6-aminoindole and 4-aminoindole.

30 Very particular preference is given to 5,6-dihydroxyindole and 5,6-dihydroxyindoline.

In a first preferred variant of the embodiments described above, the compositions are formulated such

that they comprise only indole derivatives and/or indoline derivatives of the formulae (IIIa) and (IIIb) as dye precursors and are free from customary oxidation dye precursors of the developer and/or coupler type.

5 In a second preferred variant of the embodiments described above, the compositions according to the invention may, in addition to the indole derivatives and/or indoline derivatives of the formulae (IIIa) and (IIIb), also comprise customary oxidation dye  
10 precursors of the developer and/or coupler type.

According to the invention, it may be particularly preferred to use the indole derivatives and/or the indoline derivatives of the formulae (IIIa) and (IIIb) in combination with one or more coupler components in  
15 hair coloring compositions. By way of example, express reference may be made at this point to the coupler components given above.

Furthermore, it may be preferred according to the invention to use the indole derivatives and/or indoline derivatives of the formulae (IIIa) and (IIIb) in  
20 combination with at least one amino acid or an oligo peptide in hair coloring compositions. According to the invention, it may also be preferred if the amino acid is an  $\alpha$ -amino acid. Very particularly preferred  $\alpha$ -amino  
25 acids are arginine, ornithine, lysine and histidine.

In a further preferred embodiment, the hair-treatment compositions according to the invention comprise substantive dyes. Substantive dyes are usually nitrophenylenediamines, nitroaminophenols, azo dyes,  
30 anthraquinones or indophenols. Preferred substantive dyes are the compounds known under the international names or trade names HC Yellow 2, HC Yellow 4, HC Yellow 5, HC Yellow 6, Basic Yellow 57, Disperse Orange 3, HC Red 3, HC Red BN, Basic Red 76, HC Blue 2,  
35 HC Blue 12, Disperse Blue 3, Basic Blue 99, HC Violet 1, Disperse Violet 1, Disperse Violet 4, Disperse Black 9, Basic Brown 16 and Basic Brown 17, and 4-amino-2-

nitrodiphenylamine-2'-carboxylic acid, 6-nitro-1,2,3,4-tetrahydroquinoxaline, hydroxyethyl-2-nitrotoluidine, picramic acid, 2-amino-6-chloro-4-nitrophenol 4-ethylamino-3-nitrobenzoic acid and 2-chloro-6-ethylamino-1-hydroxy-4-nitrobenzene.

The compositions of the invention according to this embodiment comprise the substantive dyes preferably in an amount of from 0.01 to 20% by weight, based on the total colorant.

Furthermore, the preparations according to the invention may also comprise naturally occurring dyes, such as, for example, henna red, henna neutral, henna black, chamomile blossom, sandalwood, black tea, buckthorn bark, sage, logwood, madder root, catechu, indigo, sedre and alkanna root.

It is not necessary that the oxidation dye precursors or the substantive dyes are each uniform compounds. Rather, as a consequence of the preparation processes for the individual dyes, the hair coloring compositions according to the invention may also comprise further components in lesser amounts, provided these do not adversely affect the coloring result or do not have to be excluded for other reasons, e.g. toxicological reasons.

With regard to the dyes which can be used in the hair coloring compositions according to the invention, express reference is also made to the monograph Ch. Zviak, The Science of Hair Care, Chapter 7 (pages 248-250; substantive dyes), and chapter 8, pages 264-267; oxidation dye precursors), published as volume 7 of the series "Dermatology" (Ed.: Ch. Culnan and H. Maibach), Verlag Marcel Dekker Inc., New York, Basle, 1986, and the "European Inventory of Cosmetic Raw Materials", published by the European Community, available in floppy disk form from the Bundesverband Deutscher Industrie- und Handelsunternehmen für Arzneimittel, Reformwaren und Körperpflagemittel [Federal Association

of German Industrial and Commercial Enterprises for Medicaments, Health Goods and Bodycare Products], Mannheim.

5 Colorations of particular color depth can be achieved if, in addition to the dyes and/or dye precursors, the compositions additionally comprise Meadowfoam Seed Oil (INCI name).

10 In a very particularly preferred embodiment of the present invention, the compositions comprise at least one dye and/or a dye precursor, polyquaternium-2 and the compound of the formula (I) known under the INCI name Linoleamidopropyl PG-Dimonium Chloride Phosphate.

15 For the preparation of the colorants according to the invention, the dye precursors are incorporated into a suitable aqueous, alcoholic or aqueous-alcoholic carrier. For the purposes of hair coloring, such carriers are, for example, creams, emulsions, liquids, gels or else tenside-containing foaming solutions, e.g. shampoos, foam aerosols or other preparations which are  
20 suitable for application to the hair.

For the purposes of the present invention, aqueous-alcoholic solutions are to be understood as meaning aqueous solutions comprising 3 to 70% by weight of a C<sub>1</sub>-C<sub>4</sub>-alcohol, in particular ethanol or  
25 isopropanol. The compositions according to the invention can additionally comprise further organic solvents, such as, for example, methoxybutanol, benzyl alcohol, ethyl diglycol or 1,2-propylene glycol. Preference is given here to water-soluble organic  
30 solvents.

The oxidative development of the coloration can in principle take place using atmospheric oxygen. However, preference is given to using a chemical oxidizing agent, particularly when a lightening effect on human  
35 hair is desired in addition to the coloration. Suitable oxidizing agents are persulfates, chlorites and, in particular, hydrogen peroxide or addition products

thereof with urea, melamine, and also sodium borate. It is also possible to carry out the oxidation using enzymes. In this connection, the enzymes may serve to transfer atmospheric oxygen to the developer component or to intensify the effect of small amounts of oxidizing agent present. An example of an enzymatic process is the procedure to intensify the effect of small amounts (e.g. 1% and less, based on the overall composition) of hydrogen peroxide by peroxidases.

The preparation of the oxidizing agent is expediently mixed with the preparation from the oxidation dye precursors directly prior to hair coloring. The resulting ready-to-use hair coloring preparation should preferably have a pH in the range from 6 to 12. Particular preference is given to the use of the hair coloring composition in a weakly alkaline medium. The application temperatures may be in a range between 15 and 40°C. After a contact time of from 5 to 45 minutes, the hair coloring composition is removed from the hair to be colored by rinsing. Subsequent washing with a shampoo is dispensed with if a carrier with a high content of tenside, e.g. a color shampoo, has been used.

The hair-treatment compositions according to the invention may also comprise all active ingredients, additives and auxiliaries known for such preparations. In many cases, the compositions comprise at least one tenside, anionic and also zwitterionic, ampholytic, nonionic and cationic tensides being suitable in principle. In many cases, it has, however, proven advantageous to choose the tensides from anionic, zwitterionic or nonionic tensides.

Surprisingly, it has been found that anionic tensides can be incorporated into the compositions according to the invention without the formation of noteworthy precipitates with the cationic components.

Suitable anionic tensides in preparations

- according to the invention are all anionic surface-active substances suitable for use on the human body. These are characterized by a solubilizing, anionic group, such as, for example, a carboxylate, sulfate, sulfonate or phosphate group, and a lipophilic alkyl group having about 10 to 22 carbon atoms. Additionally, glycol or polyglycol ether groups, ester groups, ether groups and amide groups, and hydroxyl groups may be present in the molecule. Examples of suitable anionic surfactants are, in each case in the form of the sodium, potassium and ammonium and also the mono- di- and trialkanolammonium salts having 2 to 3 carbon atoms in the alkanol group,
- linear fatty acids having 10 to 22 carbon atoms (soaps)
  - ether carboxylic acids of the formula  $R-O-(CH_2-CH_2O)_x-CH_2-COOH$ , in which R is a linear alkyl group having 10 to 22 carbon atoms and  $x = 0$  or 1 to 16,
  - acyl sarcosides having 10 to 18 carbon atoms in the acyl group,
  - acyl taurides having 10 to 18 carbon atoms in the acyl group,
  - acyl isethionates having 10 to 18 carbon atoms in the acyl group,
  - sulfosuccinic mono- and dialkyl esters having 8 to 18 carbon atoms in the alkyl group and sulfosuccinic monoalkyl polyoxyethyl esters having 8 to 18 carbon atoms in the alkyl group and 1 to 6 oxyethyl groups,
  - linear alkanesulfonates having 12 to 18 carbon atoms,
  - linear alpha-olefinsulfonates having 12 to 18 carbon atoms,
  - alpha-sulfo fatty acid methyl esters of fatty acids having 12 to 18 carbon atoms,
  - alkyl sulfates and alkyl polyglycol ether sulfates of the formula  $R-O(CH_2-CH_2O)_x-SO_3H$ , in which R is a preferably linear alkyl group having 10 to 18 carbon atoms and  $x = 0$  or 1 to 12,

- mixtures of surface-active hydroxysulfonates according to DE-A-37 25 030,
- sulfated hydroxyalkylpolyethylene and/or hydroxy-alkylene propylene glycol ethers according to  
5 DE-A-37 23 354,
- sulfonates of unsaturated fatty acids having 12 to 24 carbon atoms and 1 to 6 double bonds according to DE-A-39 26 344,
- esters of tartaric acid and citric acid with  
10 alcohols, which represent addition products of approximately 2-15 molecules of ethylene oxide and/or propylene oxide with fatty alcohols having 8 to 22 carbon atoms.

Preferred anionic tensides are alkyl sulfates,  
15 alkylpolyglycol ether sulfates and ether carboxylic acids having 10 to 18 carbon atoms in the alkyl group and up to 12 glycol ether groups in the molecule and, in particular, salts of saturated and, in particular, unsaturated C<sub>8</sub>-C<sub>22</sub>-carboxylic acids, such as oleic acid,  
20 stearic acid, isostearic acid and palmitic acid.

Zwitterionic tensides is the term used for those surface-active compounds which carry at least one quaternary ammonium group and at least one -COO<sup>(-)</sup> or -SO<sub>3</sub><sup>(-)</sup> group in the molecule. Particular suitable  
25 zwitterionic tensides are the betaines, such as N-alkyl-N,N-dimethylammonium glycinate, for example cocoalkyldimethylammonium glycinate, N-acylaminoethyl-N,N-dimethylammonium glycinate, for example cocoacylaminoethyl dimethylammonium glycinate, and 2-alkyl-3-carboxymethyl-3-hydroxyethylimidazolines having  
30 in each case 8 to 18 carbon atoms in the alkyl or acyl group, and also cocoacylaminoethyl hydroxyethyl-carboxymethylglycinate. A preferred zwitterionic tenside is the fatty acid amide derivative known under  
35 the INCI name Cocamidopropyl Betaine.

Ampholytic tensides are to be understood as meaning those surface-active compounds which, apart

from a C<sub>8</sub>-C<sub>18</sub>-alkyl or -acyl group in the molecule, contain at least one free amino group and at least one -COOH or -SO<sub>3</sub>H group and are capable of forming internal salts. Examples of suitable ampholytic  
5 tensides are N-alkylglycines, N-alkylpropionic acids, N-alkylaminobutyric acids, N-alkyliminodipropionic acids, N-hydroxyethyl-N-alkylamidopropylglycines, N-alkyltaurines, N-alkylsarcosines, 2-alkylaminopropionic acids and alkylaminoacetic acids having in each case  
10 about 8 to 18 carbon atoms in the alkyl group. Particularly preferred ampholytic tensides are N-cocoalkylaminopropionate, cocoacylaminoethylamino-propionate and C<sub>12-18</sub>-acylsarcosine.

Nonionic tensides contain, as hydrophilic group,  
15 e.g. a polyol group, a polyalkylene glycol ether group or a combination of polyol and polyglycol ether groups. Such compounds are, for example,

- addition products of from 2 to 30 mol of ethylene oxide and/or 0 to 5 mol of propylene oxide with  
20 linear fatty alcohols having 8 to 22 carbon atoms, with fatty acids having 12 to 22 carbon atoms and with alcohol phenols having 8 to 15 carbon atoms in the alkyl group,
- C<sub>12-22</sub>-fatty acid mono- and diesters of addition  
25 products of from 1 to 30 mol of ethylene oxide with glycerol,
- C<sub>8-22</sub>-alkyl mono- and -oligoglycosides and ethoxylated analogs thereof,
- addition products of from 5 to 60 mol of ethylene  
30 oxide with castor oil and hydrogenated castor oil,
- addition products of ethylene oxide with sorbitan fatty acid esters
- addition products of ethylene oxide with fatty acid alkanolamide.

35 Alkylamidoamines, in particular fatty acid amidoamines, such as the stearylamidopropyldimethylamine available under the name Tego Amid®S 18, are



characterized, as well as by a good conditioning action, in particular by their good biodegradability.

One example of a quaternary sugar derivative which can be used as cationic tenside is the commercial  
5 product Glucquat®100, according to INCI nomenclature a "Lauryl Methyl Gluceth-10 Hydroxypropyl Dimonium Chloride".

The compounds containing alcohol groups used as tensides may each be uniform substances. However, it is  
10 generally preferred to prepare the substances starting from native vegetable or animal raw materials, thus giving mixtures of substances having varying alkyl chain lengths depending on the raw material in question.

In the case of the tensides which represent addition products of ethylene and/or propylene oxide with fatty alcohols or derivatives of these addition products, it is possible to use either products with a "normal" homologue distribution and also those with a  
15 narrowed homologue distribution. Here, "normal" homologue distribution is to be understood as meaning mixtures of homologues obtained during the reaction of fatty alcohol and alkylene oxide using alkali metals, alkali metal hydroxides or alkali metal alkoxides as  
20 catalysts. Narrowed homologue distributions are, by contrast, obtained if, for example, hydrotalcites, alkaline earth metal salts of ether carboxylic acids, alkaline earth metal oxides, hydroxides or alkoxides are used as catalysts. The use of products with  
25 narrowed homologue distribution may be preferred.

Finally, the compositions according to the invention preferably also comprise a fatty substance.

Preferred fatty substances are linear and branched, saturated and unsaturated fatty alcohols or  
35 natural fatty alcohol mixtures having 8 to 22 carbon atoms in the alkyl chain, such as, for example, decanol, octanol, octenol, dodecenol, decenol,

octadienol, dodecadienol, decadienol, oleyl alcohol, eruca alcohol, ricinoleic alcohol, stearyl alcohol, isostearyl alcohol, cetyl alcohol, lauryl alcohol, myristyl alcohol, arachidyl alcohol, caprylic alcohol, capric alcohol, linoleyl alcohol, linolenyl alcohol and behenyl alcohol, and Guerbet alcohols thereof, and also fatty alcohol sections which are produced by reducing naturally occurring triglycerides, such as beef tallow, palm oil, peanut oil, rapeseed oil, cottonseed oil, soyabean oil, sunflower oil and linseed oil, or fatty acid esters arising from their transesterification products with corresponding alcohols, and thus represent a mixture of different fatty alcohols. The fatty alcohols are usually used in amounts of from 0.01 to 15% by weight, preferably from 0.1 to 10% by weight and particularly preferably from 0.3 to 6% by weight, based on the total preparation.

As fatty substances, it is also possible to use monoesters of the fatty acids with alcohols having 6 to 24 carbon atoms, and triglycerides of natural origin.

Further active ingredients, auxiliaries and additives are, for example,

- nonionic polymers, such as, for example, vinylpyrrolidone/vinyl acrylate copolymers, polyvinylpyrrolidone and vinylpyrrolidone/vinyl acetate copolymers and polysiloxanes,
- zwitterionic and amphoteric polymers, such as, for example, acrylamidopropyltrimethylammonium chloride/acrylate copolymers and octylacrylamide/methyl methacrylate/tert-butylaminoethyl methacrylate/2-hydroxypropyl methacrylate copolymers,
- anionic polymers, such as, for example, polyacrylic acids, crosslinked polyacrylic acids, vinyl acetate/crotonic acid copolymers, vinylpyrrolidone/vinyl acrylate copolymers, vinyl acetate/butyl maleate/isobornyl acrylate copolymers, methyl vinyl ether/maleic anhydride copolymers and

- acrylic acid/ethyl acrylate/N-tert-butylacrylamide terpolymers,
- thickeners, such as agar-agar, guar gum, alginate, xanthan gum, gum arabic, karaya gum, carob seed grain, linseed gums, dextrans, cellulose derivatives, e.g. methylcellulose, hydroxyalkylcellulose and carboxymethylcellulose, starch fractions and derivatives, such as amylose, amylopektin and dextrans, clays, such as, for example, bentonite or completely synthetic hydrocolloids, such as, for example, polyvinyl alcohol,
  - structurants, such as glucose and maleic acid,
  - hair-conditioning compounds, such as phospholipids, for example soya lecithin, egg lecithin and cephalins,
  - perfume oils, dimethyl isosorbide and cyclodextrins,
  - solubility promoters, such as ethanol, isopropanol, ethylene glycol, propylene glycol, glycerol and diethylene glycol,
  - antidandruff active ingredients, such as piroctone olamine and zinc omadine,
  - further substances for setting the pH,
  - active ingredients, such as panthenol, pantothenic acid, allantoin, pyrrolidonecarboxylic acids and salts thereof, plant extracts and vitamins,
  - cholesterol,
  - light protection agents,
  - bodying agents, such as sugar esters, polyol esters or polyol alcohol ethers,
  - fats and waxes, such as spermaceti, beeswax, montan wax, paraffins, fatty alcohols and fatty acid esters,
  - fatty acid alkanolamides,
  - complexing agents, such as EDTA, NTA and phosphonic acids,
  - swelling and penetration substances, such as glycerol, propylene glycol monoethyl ether, carbonates, hydrogencarbonates, guanidines, ureas and

- primary, secondary and tertiary phosphates,
- opacifiers, such as latex,
  - pearlizing agents, such as ethylene glycol mono- and distearate,
  - 5 - propellants, such as propane-butane mixtures, N<sub>2</sub>O, diemthyl ether, CO<sub>2</sub> and air, and
  - antioxidants.

10 The constituents of the water-containing carrier are used for the preparation of the hair-treatment compositions according to the invention in amounts customary for this purpose; e.g. emulsifiers are used in concentrations of from 0.5 to 30% by weight and thickeners are used in concentrations of from 0.1 to 25% by weight of the overall composition.

15 The present invention further provides for the use of the compositions as claimed in one of claims 3 to 12 for coloring keratin fibers.

The examples below serve to illustrate the subject-matter of the present invention in more detail.

All amounts given in the examples are parts by weight.

**Example 1**

	Ammonium carbopol solution, 1% strength in water <sup>1</sup>	17.25
5	Ammonium rohagit solution, 6% strength in water <sup>2</sup>	5.25
	Oleth-7 <sup>3</sup>	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000 <sup>4</sup>	0.53
10	Titanium dioxide anatase, type AS 05	0.48
	Cetiol® V <sup>5</sup>	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE <sup>6</sup>	2.85
	Phospholipid EFA <sup>7</sup>	0.85
15	Tetrasodium EDTA	0.46
	Silica, highly dispersed, pyrogenic	0.11
	p-Tolylenediamine	2.41
	Resorcinol	0.86
	3-Aminophenol	0.26
20	1-Methoxy-2-amino-4-(2-hydroxyethylamino)benzene	0.11
	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 9.0
	Ascorbic acid	0.06
25	Mirapol® A15 <sup>8</sup>	0.19
	Perfume	0.43
	Water	ad 100.00
30	<sup>1</sup> Solution of an ammonium salt of a methacrylic acid-methyl acrylate copolymer (INCI name: Ammonium Polyacrylate) (Röhm GmbH)	
	<sup>2</sup> Solution of an ammonium salt of an acrylic acid polymer (INCI name: Ammonium Acrylate Copolymer) (Goodrich)	
35	<sup>3</sup> Oleyl alcohol with 7 EO units (Henkel)	
	<sup>4</sup> C <sub>8-16</sub> -alkyl 1,4-polyglucoside (about 51% active substance; INCI name: Decyl Glucoside) (Henkel)	

- 5 Oleic acid decyl ester (INCI name: Decyl Oleate)  
(Henkel)  
6 (INCI name: Glyceryl Stearate) (Oleofina)  
7 Compound of the formula (I) (about 30% active  
5 substance; INCI name: Linoleamidopropyl PG-Dimonium  
Chloride Phosphate) (Mona)  
8 About 64% active substance; INCI name:  
Polyquaternium-2 (Rhodia)

10 This composition was mixed with an aqueous, 6%  
strength hydrogen peroxide solution in the ratio 1:1  
and applied to a light brown, 80% gray normal hair  
tress. After a contact time of 30 min at 25°C, the  
tress was rinsed with water, subsequently shampooed and  
15 dried with a hairdryer.

The resulting tress had been colored dark brown  
and had very good gray coverage.

Example 2

	Ammonium carbopol solution, 1% strength in water	17.25
	Ammonium rohagit solution, 6% strength in water	5.25
5	Oleth-7	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000	0.53
	Titanium dioxide anatase, type AS 05	0.48
10	Cetiol® V	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE	2.85
	Phospholipid EFA	0.85
	Tetrasodium EDTA	0.46
15	Silica, highly dispersed, pyrogenic	0.11
	p-Tolylenediamine	2.12
	Resorcinol	0.63
	3-Aminophenol	0.20
	1-Methoxy-2-amino-4-(2-hydroxyethylamino)benzene	0.05
20	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 10.0
	Ascorbic acid	0.06
	Cetyltrimethylammonium bromide	0.50
25	Perfume	0.43
	Water	ad 100.00

30 This composition was mixed with an aqueous, 6% strength hydrogen peroxide solution in the ratio 1:1 and applied to a dark blond, 50% gray normal hair tress. After a contact time of 30 min at 25°C, the tress was rinsed with water, subsequently shampooed and dried with a hairdryer.

35 The resulting tress had been colored light brown and had very good gray coverage.

Example 3

	Ammonium carbopol solution, 1% strength in water	17.25
	Ammonium rohagit solution, 6% strength in water	5.25
5	Oleth-7	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000	0.53
	Titanium dioxide anatase, type AS 05	0.48
10	Cetiol® V	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE	2.85
	Phospholipid EFA	0.85
	Tetrasodium EDTA	0.46
15	Silica, highly dispersed, pyrogenic	0.11
	p-Tolylenediamine	0.84
	Resorcinol	0.21
	3-Aminophenol	0.05
	4-Chlororesorcinol	0.15
20	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 10.5
	Ascorbic acid	0.06
	Rewoquat® W 75 PG <sup>9</sup>	0.30
25	Perfume	0.43
	Water	ad 100.00
9	1-Methyl-2-nortallow-alkyl-3-tallow fatty acid	
	amidoethylimidazolinium methosulfate (about 75%	
30	active substance in propylene glycol; INCI name:	
	Quaternium 27) (Witco Surfactants GmbH)	

This composition was mixed with an aqueous, 6% strength hydrogen peroxide solution in the ratio 1:1 and applied to a medium blond, 50% gray normal hair tress. After a contact time of 30 min at 25°C, the tress was rinsed with water, subsequently shampooed and



dried with a hairdryer.

The resulting tress had been colored dark blond and had very good gray coverage.

2000-04-20 14:00:00

Example 4

	Ammonium carbopol solution, 1% strength in water	17.25
	Ammonium rohagit solution, 6% strength in water	5.25
5	Oleth-7	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000	0.53
	Titanium dioxide anatase, type AS 05	0.48
10	Cetiol® V	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE	2.85
	Phospholipid EFA	0.85
	Tetrasodium EDTA	0.46
15	Silica, highly dispersed, pyrogenic	0.22
	p-Tolylenediamine	1.33
	Resorcinol	0.48
	3-Aminophenol	0.10
	1-Methoxy-2-amino-4-(2-hydroxyethylamino)benzene	0.02
20	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 9.5
	Ascorbic acid	0.06
	Polymer JR® 400 <sup>10</sup>	1.00
25	Perfume	0.43
	Water	ad 100.00
10	Quaternized hydroxyethylcellulose (INCI name:	
	Polyquaternium-10) (Amerchol)	

30

This composition was mixed with an aqueous, 1.5% strength hydrogen peroxide solution in the ratio 1:2 and applied to a dark blond normal hair tress. After a contact time of 30 min at 25°C, the tress was rinsed with water, subsequently shampooed and dried with a hairdryer.

35

The resulting tress had been colored light brown.

Example 5

	Ammonium carbopol solution, 1% strength in water	17.25
	Ammonium rohagit solution, 6% strength in water	5.25
5	Oleth-7	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000	0.53
	Titanium dioxide anatase, type AS 05	0.48
10	Cetiol® V	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE	2.85
	Phospholipid SV <sup>11</sup>	0.85
	Tetrasodium EDTA	0.46
15	Silica, highly dispersed, pyrogenic	0.11
	p-Tolylenediamine	2.41
	Resorcinol	0.86
	3-Aminophenol	0.26
	1-Methoxy-2-amino-4-(2-hydroxyethylamino)benzene	0.11
20	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 9.0
	Ascorbic acid	0.06
	Gafquat® 755N <sup>12</sup>	0.50
25	Perfume	0.43
	Water	ad 100.00

11 Compound of the formula (I) (about 41.5% active substance; INCI name: Stearamidopropyl PG-Dimonium Chloride Phosphate (and) Cetyl Alcohol) (Mona)

12 Quaternized vinylpyrrolidone-dimethylaminoethyl methacrylate copolymer diethyl sulfate (about 19% active substance; INCI name: Polyquaternium-11) (ISP)

35 This composition was mixed with an aqueous, 6% strength hydrogen peroxide solution in the ratio 1:1 and applied to a light brown, 50% gray normal hair

0937613-0440

tress. After a contact time of 30 min at 25°C, the tress was rinsed with water, subsequently shampooed and dried with a hairdryer. The resulting tress had been colored dark brown and had very good gray coverage.

20040904 21:05:00

Example 6

	Ammonium carbopol solution, 1% strength in water	17.25
	Ammonium rohagit solution, 6% strength in water	5.25
5	Oleth-7	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000	0.53
	Titanium dioxide anatase, type AS 05	0.48
10	Cetiol® V	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE	2.85
	Phospholipid SV	0.85
	Tetrasodium EDTA	0.46
15	Silica, highly dispersed, pyrogenic	0.11
	p-Tolylenediamine	2.12
	Resorcinol	0.63
	3-Aminophenol	0.20
	1-Methoxy-2-amino-4-(2-hydroxyethylamino)benzene	0.05
20	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 8.9
	Ascorbic acid	0.06
	Crotein® C <sup>13</sup>	0.30
25	Perfume	0.43
	Water	ad 100.00

<sup>13</sup> Gelatin hydrolyzate (about 93% active substance; INCI name: Hydrolyzed Collagen) (Croda)

30

This composition was mixed with an aqueous, 3% strength hydrogen peroxide solution in the ratio 1:1 and applied to a medium blond normal hair tress. After a contact time of 30 min at 25°C, the tress was rinsed  
 35 with water, subsequently shampooed and dried with a hairdryer.

The resulting tress had been colored medium brown.

204210-2162660

Example 7

	Ammonium carbopol solution, 1% strength in water	17.25
	Ammonium rohagit solution, 6% strength in water	5.25
5	Oleth-7	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000	0.53
	Titanium dioxide anatase, type AS 05	0.48
10	Cetiol® V	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE	2.85
	Phospholipid SV	0.85
	Tetrasodium EDTA	0.46
15	Silica, highly dispersed, pyrogenic	0.11
	p-Tolylenediamine	0.84
	Resorcinol	0.21
	3-Aminophenol	0.05
	4-Chlororesorcinol	0.16
20	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 9.0
	Ascorbic acid	0.06
	Gluadin® WK <sup>14</sup>	0.70
25	Perfume	0.43
	Water	ad 100.00

- <sup>14</sup> Wheat protein hydrolzate/fatty acid condensate (about 30% active substance; INCI name: Sodium Cocoyl Hydrolyzed Wheat Protein) (Henkel)

This composition was mixed with an aqueous, 3% strength hydrogen peroxide solution in the ratio 1:2 and applied to a medium blond normal hair tress. After a contact time of 30 min at 25°C, the tress was rinsed with water, subsequently shampooed and dried with a hairdryer.

The resulting tress had been colored dark blond.

06927010402

Example 8

	Ammonium carbopol solution, 1% strength in water	17.25
	Ammonium rohagit solution, 6% strength in water	5.25
5	Oleth-7	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000	0.53
	Titanium dioxide anatase, type AS 05	0.48
10	Cetiol® V	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE	2.85
	Phospholipid PTC <sup>15</sup>	0.85
	Tetrasodium EDTA	0.46
15	Silica, highly dispersed, pyrogenic	0.11
	p-Tolylenediamine	2.41
	Resorcinol	0.86
	3-Aminophenol	0.26
	1-Methoxy-2-amino-4-(2-hydroxyethylamino)benzene	0.11
20	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 9.1
	Ascorbic acid	0.06
	Merquat® 280 <sup>16</sup>	0.20
25	Perfume	0.43
	Water	ad 100.00

15 Compound of the formula (I) (about 47% active  
substance; INCI name: Cocamidopropyl Pg-Dimonium  
30 Chloride Phosphat) (Mona)

16 Dimethyldiallylammonium chloride-acrylic acid  
copolymer (about 35% active substance; INCI name:  
polyquaternium-22) (Chemviron)

35 This composition was mixed with an aqueous 6%  
strength hydrogen peroxide solution in the ratio 1:1  
and applied to a light brown, 50% gray normal hair

0997946-01402  
204319-276660



tress. After a contact time of 30 min at 25°C, the tress was rinsed with water, subsequently shampooed and dried with a hairdryer.

The resulting tress had been colored dark brown  
5 and had very good gray coverage.

204210" 2162258

Example 9

	Ammonium carbopol solution, 1% strength in water	17.25
	Ammonium rohagit solution, 6% strength in water	5.25
5	Oleth-7	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000	0.53
	Titanium dioxide anatase, type AS 05	0.48
10	Cetiol® V	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE	2.85
	Phospholipid PTC	0.85
	Tetrasodium EDTA	0.46
15	Silica, highly dispersed, pyrogenic	0.11
	p-Tolylenediamine	2.12
	Resorcinol	0.63
	3-Aminophenol	0.20
	1-Methoxy-2-amino-4-(2-hydroxyethylamino)benzene	0.05
20	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 9.1
	Ascorbic acid	0.06
	Jaguar® C-17 <sup>17</sup>	0.30
25	Perfume	0.43
	Water	ad 100.00

<sup>17</sup> Guar hydroxypropyltrimethylammonium chloride (INCI name: Hydroxypropyltrimonium Chloride) (Rhodia Inc.)

30

This composition was mixed with an aqueous, 3% strength hydrogen peroxide solution in the ratio 1:2 and applied to a light brown normal hair tress. After a contact time of 30 min at 25°C, the tress was rinsed with water, subsequently shampooed and dried with a hairdryer.

35

The resulting tress had been colored medium brown.

Example 10

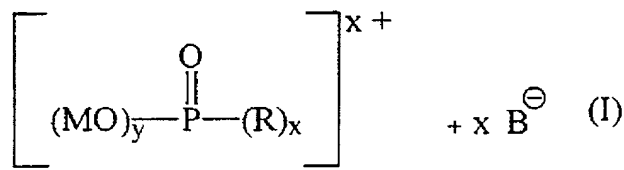
	Ammonium carbopol solution, 1% strength in water	17.25
	Ammonium rohagit solution, 6% strength in water	5.25
5	Oleth-7	5.70
	Potassium olein soap, 12.5% strength in water	12.75
	Potassium castor oil soap, 12.5% strength in water	3.45
	Plantaren® 2000	0.53
	Titanium dioxide anatase, type AS 05	0.48
10	Cetiol® V	3.45
	Cetyl alcohol	16.80
	Glycerol monostearate NSE	2.85
	Phospholipid PTC	0.85
	Tetrasodium EDTA	0.46
15	Silica, highly dispersed, pyrogenic	0.22
	p-Tolylenediamine	1.33
	Resorcinol	0.48
	3-Aminophenol	0.10
	1-Methoxy-2-amino-4-(2-hydroxyethylamino)benzene	0.02
20	1,2-Propylene glycol USP	1.05
	Methoxybutanol	1.43
	Ammonia, 25% strength in water	ad pH 9.0
	Ascorbic acid	0.06
	Mirapol® A15	0.19
25	Perfume	0.43
	Water	ad 100.00

This composition was mixed with an aqueous 6% strength hydrogen peroxide solution in the ratio 1:2 and applied to a dark blond normal hair tress. After a contact time of 30 min at 25°C, the tress was rinsed with water, subsequently shampooed and dried with a hairdryer.

The resulting tress had been colored light brown.

## Patent Claims

1. An agent for the care treatment of keratin fibers,  
in particular human hair, characterized in that it  
comprises at least one tenside of the formula (I)

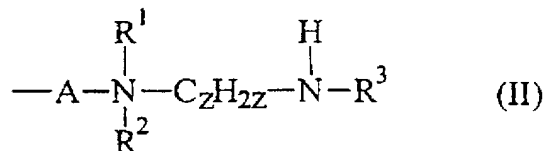


in which y is an integer from 0 to 2, x is an  
integer from 1 to 3 with the proviso that  $x + y = 3$ ,

M is hydrogen, an equivalent of an alkali metal or  
alkaline earth metal cation, an ammonium cation or  
an alkyl radical having 1 to 4 carbon atoms, which  
is optionally substituted by one or more hydroxyl  
groups,

B is an equivalent of a physiologically compatible  
anion and

R is a radical of the formula (II),



in which z is an integer from 1 to 4,

$\text{R}^1$  and  $\text{R}^2$ , independently of one another, are a  $\text{C}_1$ -  
 $\text{C}_4$ -alkyl radical, which is optionally substituted  
by one or more hydroxyl group(s) or an acyl group,

A is  $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-$ ,  $-\text{O}-\text{CH}_2-\text{CH}_2-$  or  $-\text{O}-\text{CH}_2-\text{CHOH}-$   
 $\text{CH}_2-$  and

$\text{R}^3$  is

(a) a branched or unbranched, saturated  $\text{C}_8$ - $\text{C}_{18}$ -acyl  
radical or

(b) a branched or unbranched, mono- or  
polyunsaturated  $\text{C}_8$ - $\text{C}_{18}$ -acyl radical

and at least one conditioning component.

2. The agent as claimed in claim 1, characterized in that it comprises at least one anionic tenside, in particular a soap.
- 5 3. The agent as claimed in either claim 1 or 2, characterized in that it additionally comprises at least one dye and/or at least one dye precursor.
- 10 4. The agent as claimed in any of claims 1 to 3, characterized in that the conditioning component is a low molecular weight quaternary ammonium compound.
- 15 5. The agent as claimed in any of claims 1 to 4, characterized in that the conditioning component is a cationic polymer.
- 20 6. The agent as claimed in claim 5, characterized in that the conditioning component is a quaternized cellulose derivative.
- 25 7. The agent as claimed in claim 5 or 6, characterized in that the conditioning component is polyquaternium-2.
8. The agent as claimed in any of claims 1 to 7, characterized in that the conditioning component is a quaternized protein hydrolyzate.
- 30 9. The agent as claimed in any of claims 1 to 8, characterized in that the conditioning component is a silicone oil.
- 35 10. The agent as claimed in any of claims 3 to 9, characterized in that it comprises at least one dye precursor of the developer type.

11. The agent as claimed in any of claims 3 to 10,  
characterized in it comprises at least one indole  
and/or indolene derivative as dye precursor.
- 5 12. The agent as claimed in any of claims 3 to 11,  
characterized in that it comprises at least one  
substantive dye and/or a natural dye.
- 10 13. The use of one of the agents of claims 3 to 12 for  
coloring keratin fibers.

204270-2162550

"Express Mail" mailing label number EL615775366US

Date of Deposit \_\_\_\_\_

PTO/SB/01 (6-95)

Approved for use through: 10/31/98 OMB 0651-0032

Type a plus sign (+) inside this box → ☐

Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

<div style="text-align: center;"><b>DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION</b></div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"><div><input type="checkbox"/> Declaration Submitted with Initial Filing</div><div>OR</div><div><input checked="" type="checkbox"/> Declaration Submitted after Initial Filing</div></div>		<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%;">Attorney Docket Number</td><td style="width: 50%;">H 3933 PCT/US</td></tr><tr><td>First Named Inventor</td><td>Akram, Mustafa</td></tr><tr><td colspan="2" style="text-align: center;">COMPLETE IF KNOWN</td></tr><tr><td>Application Number</td><td></td></tr><tr><td>Filing Date</td><td></td></tr><tr><td>Group Art Unit</td><td></td></tr><tr><td>Examiner Name</td><td></td></tr></table>		Attorney Docket Number	H 3933 PCT/US	First Named Inventor	Akram, Mustafa	COMPLETE IF KNOWN		Application Number		Filing Date		Group Art Unit		Examiner Name	
Attorney Docket Number	H 3933 PCT/US																
First Named Inventor	Akram, Mustafa																
COMPLETE IF KNOWN																	
Application Number																	
Filing Date																	
Group Art Unit																	
Examiner Name																	

As a below named inventor, I hereby declare that:  
My residence, post office address, and citizenship are as stated below next to my name.  
I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**PHOSPHATE-TYPE TENSIDES COMBINED WITH HAIR CONDITIONING AGENTS IN HAIR COLOURING COMPOSITIONS**

*(Title of the Invention)*

the specification of which ☐ is attached hereto

OR

☒ was filed on (MM/DD/YYYY) 03/22/2000 as United States Application Number or PCT International Application Number PCT/EP00/02538 and was amended on (MM/DD/YYYY) \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
199 14 927.5	Germany	04/01/1999	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority sheet attached hereto:

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.

Burden Hour Statement: This form is estimated to take .4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington DC 20231.

Type a plus sign (+) inside this box → ☐

H 3933 PCT/US

## DECLARATION

Page 2

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365© of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112.1 acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)
	PCT/EP00/02538	03/22/2000	

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☐ Firm Name  Customer Number  or label   
OR☒ List Attorney(s) and/or agent(s) name and registration number below:

Name	Registration Number	Name	Registration Number
Wayne C. Jaeschke	21,062		
Glenn E. J. Murphy	33,539		
Stephen D. Harper	33,243		
Kimberly R. Hild	39,224		

☐ Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

Please direct all correspondence to: ☒ Customer Number  or label  00423 OR ☐ Fill in correspondence address below

Name	Kimberly R. Hild		
Address	Henkel Corporation		
Address	2500 Renaissance Blvd, Suite 200		
City	Gulph Mills	State	PA
Zip	19406		
Country	USA	Telephone	610-278-4964
Fax	610-278-6548		

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name	Mustafa	Middle Initial		Family Name	Akram	Suffix e.g. Jr.	
Inventor's Signature	<i>Mustafa Akram</i>				Date	January 4, 2002	
Residence: City	Hamburg	State	DE	Country	Germany	Citizenship	Germany
Post Office Address	Zylbergstr. 14						
Post Office Address							
City	22457 Hamburg	State		Zip		Country	Germany
Applicant Authority							

☒ Additional inventors are being named on supplemental sheet(s) attached hereto



(+) inside this box →

H 3933 PCT/US

# DECLARATION

## ADDITIONAL INVENTOR(S) Supplemental Sheet

Name of Additional Joint Inventor, if any:

☐

A petition has been filed for this unsigned inventor

Given Name	<b>Wolfgang</b>	Middle Initial		Family Name	<b>Wolff</b>	Suffix e.g. Jr.	
Inventor's Signature	<i>Wolfgang Wolff</i>				Date	<i>January 4, 2002</i>	
Residence: City	<b>Bargteheide</b>	State		Country	<b>Germany</b>	Citizenship	<b>Germany</b>
Post Office Address	<b>Neue Strasse 36</b>						
Post Office Address							
City	<b>22941 Bargteheide</b>	State		Zip		Country	<b>Germany</b>
						Applicant Authority	

Name of Additional Joint Inventor, if any:

☐

A petition has been filed for this unsigned inventor

Given Name	<b>Sandra</b>	Middle Initial		Family Name	<b>Rohweder</b>	Suffix e.g. Jr.	
Inventor's Signature	<i>Sandra R. Rohweder</i>				Date	<i>January 4, 2002</i>	
Residence: City	<b>Hamburg</b>	State		Country	<b>Germany</b>	Citizenship	<b>Germany</b>
Post Office Address	<b>Daimlerwiete 3</b>						
Post Office Address							
City	<b>22763 Hamburg</b>	State		Zip		Country	<b>Germany</b>
						Applicant Authority	

Name of Additional Joint Inventor, if any:

☐

A petition has been filed for this unsigned inventor

Given Name		Middle Initial		Family Name		Suffix e.g. Jr.	
Inventor's Signature					Date		
Residence: City		State		Country		Citizenship	
Post Office Address							
Post Office Address							
City		State		Zip		Country	
						Applicant Authority	

Name of Additional Joint Inventor, if any:

☐

A petition has been filed for this unsigned inventor

Given Name		Middle Initial		Family Name		Suffix e.g. Jr.	
Inventor's Signature					Date		
Residence: City		State		Country		Citizenship	
Post Office Address							
Post Office Address							
City		State		Zip		Country	
						Applicant Authority	

☐ Additional inventors are being named on supplemental sheet(s) attached hereto